

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



DATE: February 18, 2005

TO: Interested Parties

FROM: Steve Munro, Compliance Project Manager

**SUBJECT: Blythe Energy Project (99-AFC-8C)
Staff Analysis of Proposed Modifications To Air Quality Conditions of
Certification Regarding Startups and Shutdowns**

The California Energy Commission received a petition from FPL Energy, dated November 2, 2004, to amend the Energy Commission Decision for the Blythe Energy Project (BEP).

The Blythe Energy Project is a 520 megawatt combined cycle power plant located in the City of Blythe in Riverside County. The project was certified by the Energy Commission on March 21, 2001, and began commercial operation on December 29, 2003.

The proposed modifications would allow Blythe Energy, LLC (Blythe Energy) to increase the startup and shutdown emissions limits for carbon monoxide (CO). Blythe Energy is also requesting increases to the daily and annual CO emission limits for the combustion equipment. Conditions of certification AQ-5, AQ-6, AQ-7, and AQ-8 would be modified accordingly. The hourly emission limit for CO during normal operation would be reduced by almost half. There would be no changes in the emission limits for any other air criteria air pollutants. The changes are necessary because the original manufacturer's estimates were based on incorrect data.

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health and safety. It is staff's opinion that, if the revised conditions are adopted, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition has been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases. Staff's analysis is enclosed for your information and review. Staff's analysis and the order (if the amendment is approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the of the Energy Commission's Business Meeting on March 30, 2005. If you have comments on this proposed modification, written comments must be received by 5:00 p.m. on March 12, 2005 at the address shown below.

California Energy Commission
1516 9th Street, MS 2000
Sacramento, CA 95814

Written comments may also be submitted by fax to (916) 654-3882, or by e-mail to smunro@energy.state.ca.us. If you have any questions, please contact Steve Munro, Compliance Project Manager, at (916) 654-3936.

Enclosure

Blythe Energy Project (99-AFC-08)
Staff Analysis: Petition to Change CO Startup Limits
Prepared by: Gabriel D. Taylor

AMENDMENT REQUEST

Blythe Energy, LLC (Blythe Energy) requests modifications of air quality Conditions of Certification AQ-6, AQ-7 and AQ-8 for the Blythe Energy Project (BEP1) to allow for increased carbon monoxide (CO) emissions during startup procedures, and clarification of the definition of startup. Blythe Energy bases this request on source testing data that shows the original vendor estimates for startup CO emissions were based on incorrect data, thus resulting in unachievable startup limits in the current permit. In addition, staff proposes modifying condition AQ-5 to bring the condition into agreement with a new Best Available Control Technology (BACT) determination for CO made by the U.S. Environmental Protection Agency (U.S. EPA).

BACKGROUND

The Blythe Energy Project is a net 520 MW combined cycle facility consisting of two Siemens V84.3A combustion turbine generators, two duct fired heat recovery steam generators (HRSGs) and a single steam turbine generator. The project received final approval from the Energy Commission on March 21, 2001, and began commercial operation on December 29, 2003.

The facility is located in the city of Blythe, California, within the Mojave Desert Air Quality Management District (MDAQMD). The MDAQMD has been designated as attainment for all CO standards.

PREVIOUSLY APPROVED AMENDMENTS

On May 16, 2001, the Energy Commission approved an amendment to allow Blythe Energy to delay the deadline for surrendering their required PM10 Emissions Reduction Credits from the start of construction to the first firing of the combustion turbines. Since no operational emissions were produced by the facility prior to first fire, staff found no significant impact from this change.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

All applicable LORS are the same as those identified in the original Blythe Energy Project analysis.

The U.S. EPA issued a revised Prevention of Significant Deterioration (PSD) permit on November 17, 2004 (EPA 2004) that set a new BACT level for CO during normal facility operations and approved modifications to the startup CO limits identical to those proposed here. Blythe Energy did not file a petition to review the final permit decision during the 30 day period allowed by 40 CFR Part 124, and the PSD permit went into full effect on December 17, 2004.

AIR QUALITY ANALYSIS

The original CO startup emissions limits were based on estimates provided by the turbine manufacturer (Siemens/Westinghouse) during the original siting analysis in the spring of 2000. These estimates were provided in writing, and though they were labeled "All values are ESTIMATED, are NOT guaranteed and are conditional per the included Caveats" (Siemens 2000), they were the only data available at the time concerning the potential startup emissions from the turbines. Siemens estimated that the CO startup emissions from the BEP1 turbines would be between 157 and 403 lb/event for each turbine, depending on the length of outage time prior to the startup. Staff used these values and, in consultation with the applicant, determined the startup limits that appear in the current BEP1 permit of between 172 and 403 lb/event for each turbine.

Continuous Emissions Monitoring System (CEMS) data collected during the initial commissioning of the facility and over the first year of normal operation have shown that the estimates provided by the turbine vendor were incorrect and are not achievable. **AIR QUALITY Table 1** below provides a small sample of the collected CO startup emissions data available in comparison to the original limits.

AIR QUALITY Table 1
Selected CO Startup CEMS Data

Type of Start	Duration (minutes)	CO (lbs)
Cold	129	2896.8
Cold	151	2794.0
Cold	88	1286.1
Warm	116	2635.3
Warm	110	1755.6
Hot	69	1425.5
Hot	72	1385.4
Original Limits	72 - 222	172 - 403

Source: Blythe 2004a, Attachment 2 and CEC 2001

It is clear from the CEMS data that there is a real need to revise the permitted startup emissions limits for BEP1. Blythe Energy proposes a two part solution. First, Blythe Energy requests to increase the startup limit to 3600 lbs per startup for each turbine, a level achievable by the turbines installed at the facility. Second, Blythe Energy requests to eliminate the existing distinction between different types of startups (cold, warm and hot), and instead simply impose a single emissions limit on all startup events.

The necessary increase in startup emissions limits is substantial enough that it will also require an increase in both daily and annual emissions limits. Though neither staff nor Blythe Energy are proposing to place a limit on the number or type of startups each day or year, at staff's request Blythe Energy prepared an estimate of worst case daily and annual BEP1 operational profiles in order to calculate the potential maximum daily and annual CO emissions. The estimated maximum emissions are then proposed as the maximum

emissions limits. These estimated daily and annual operational profiles are presented below in **AIR QUALITY Table 2** and **AIR QUALITY Table 3**.

Staff presents here a calculation of the new emissions limits followed by an analysis of the of potential impacts of these emissions increases to determine if they have the potential for significance.

Daily and Annual CO Emissions Limits Calculations

The daily CO emissions estimate in **AIR QUALITY Table 2** is based on a 24 hour period during which one cold start, one warm start, one hot start and 14.5 hours of full load operation occur. This scenario yields a maximum emissions of 8004 lbs/day of CO, the proposed new daily emissions limit.

**AIR QUALITY Table 2
Daily CO Emissions Estimate**

Type of Operation	# of Events	Hours	CO (lb/event)	Total CO
Cold Start	1	2.5	3600	3600
Warm Start	1	1.5	2200	2200
Warm Start Downtime		2.5	0	0
Hot Start	1	1	1200	1200
Hot Start Downtime		0.5	0	0
Shutdown	3	1.5	250	750
Operations		14.5	17.5	253.75
Total CT Hours of Operation		24	-	-
Facility Maximum Daily Total CO Emissions Estimate (lbs/day)				8004

Source: Blythe 2004b, Table 1, p. 2-3

The annual CO emissions estimate in **AIR QUALITY Table 3** is based on 8760 hours of operation including 10 cold starts, 50 warm starts, 340 hot starts and 6336.3 hours of steady state operation at the new BACT level of 17.5 lb/hour set by the U.S. EPA (EPA 2004). This scenario yields a maximum emissions of 621 tons/year of CO, the proposed new annual emissions limit.

AIR QUALITY Table 3
Annual CO Emissions Estimate

Type of Operation	# of Events	Hours	CO (lb/event)	Total CO
Cold Start (CT1)	10	36.8	3600	36,000
Cold Start Downtime		480		0
Warm Start (CT1)	50	100.8	2200	110,000
Warm Start Downtime		400		0
Hot Start (CT1)	240	296.0	1200	288,000
Hot Start Downtime		960		0
Shutdown (CT1)	300	150.0	250	75,000
Operations (CT1)		6336.3	17.5	110,885
Total CT1 Hours of Operation		8760	-	-
Cold Start (CT2)	10	31.0	3600	36,000
Cold Start Downtime		480		0
Warm Start (CT2)	50	74.2	2200	110,000
Warm Start Downtime		400		0
Hot Start (CT2)	240	256.0	1200	288,000
Hot Start Downtime		960		0
Shutdown (CT2)	300	150.0	250	75,000
Operations (CT2)		6408.8	17.5	112,154
Total CT2 Hours of Operation		8760	-	-
Facility Annual Total CO Emissions Estimate (lb/year)				1,241,040
Facility Annual Total CO Emissions Estimate (tons/year)				621

Source: Blythe 2004b, Table 1, p. 2-3

The difference between the startup times for CT1 and CT2 are due to the two-on-one configuration of the BEP1 turbines and steam generator. One turbine (represented by CT1) is started first and used to heat the steam turbine generator, followed by the startup of the other turbine (represented by CT2). This results in slightly lower startup times for CT2.

Staff is satisfied that these potential operational profiles are technically realistic representations of worst case operations.

Potential for Significant CO Impacts

The U.S. EPA and the California Air Resources Board (CARB) have both established allowable maximum ambient concentrations of air pollutants based on public health impacts, called ambient air quality standards (AAQS). The state AAQS, established by CARB, are typically lower (more stringent) than the federal AAQS, established by the U.S. EPA. Both EPA and CARB have established a 1-hour and an 8-hour average AAQS for CO, but no longer-term standards are established. Limits are placed on the facility startup emissions to prevent possible violations of these short term AAQS.

Though it is clear from the CEMS data that there is a real need to increase the permitted startup emissions limits for BEP1, an air quality impact assessment must be performed to determine whether this increase would have the potential to cause new violations of short term AAQS. Blythe Energy prepared an impact modeling analysis of both the proposed new emissions levels and of the cumulative impact of these proposed emissions levels

along with any potential other CO sources in the local region to show whether any new violations of either the 1-hour or 8-hour AAQS for CO would potentially occur.

Startup CO Impact Modeling

Blythe Energy performed an air dispersion modeling analysis using the U.S. EPA approved Industrial Source Complex Short Term, version 3, model (ISCST3) to evaluate the potential impacts on the area from the higher proposed startup limit. The applicant used the meteorological data set from the City of Blythe monitoring station spanning the years 1989-1993 (the most recent data available from the City of Blythe), and concurrent mixing height data obtained from the Desert Rock, NV upper air station. ISCST3 is an accepted model for this type of modeling and the input meteorological input data is sufficient.

Staff adds the resulting predicted maximum modeled impact from the facility to actual maximum ambient impact measurements from the region of the project site, thus including the worst case impacts from local sources currently in operation. This results in a worst case potential impact value that is then compared to the most restrictive AAQS. In this analysis, the maximum ambient CO 1-hour and 8-hour average values from the Palm Springs monitoring station over the years 2000-2004 were used as background values. This monitoring station was used since no monitoring is available from the City of Blythe itself, and although this site approximately 100 miles west of the project site, it is considered a conservative representation due to meteorological and anthropogenic effects on ambient air quality. The modeling exercise assumes that both turbines emit the proposed maximum 3600 lbs of CO in one hour for the 1-hour average estimate, and the proposed maximum daily emissions of 8004 lbs in eight hours for the 8-hour average estimate. The results of this modeling exercise is presented in **AIR QUALITY Table 4** below and show that the direct startup impacts from the facility will not cause a new violation of an AAQS even under very conservative conditions.

AIR QUALITY Table 4
Modeled Startup CO Impact

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
CO	1 hour	5,075	3,191	8,266	23,000	36%
	8 hour	517	1,891	2,408	10,000	24%

Source: Blythe 2004b, Table 5, p. 6-4 and Blythe 2004c

Cumulative CO Impact Modeling

Even though the potential impacts from the BEP1 startup alone are not predicted to cause a significant direct impact, there is concern that these emissions in combination with other facilities in the vicinity that are not yet operational (and thus not represented in the background value used) could result in a violation of an AAQS. Blythe Energy thus prepared a cumulative impact modeling analysis to examine the potential impact of BEP1 in combination with other potential sources of CO. In order to prepare such an analysis, it is necessary to have detailed emissions information for all sources to be included. A probable future project is usually well enough defined to have the necessary information available when that project applicant has submitted an application to the District for a permit. Air dispersion modeling required by the District would necessitate that each project

applicant develop the modeling input parameters to perform a modeling analysis of their own, and these input parameters can be obtained from the District.

Blythe Energy identified a total of ten other CO sources near the BEP1 (Blythe 2004b, Table 6, p. 6-5), including not only potential future sources such as the Blythe Energy Project II, but also a number of larger local existing sources. This cumulative analysis is thus very conservative. Staff also notes that this modeling assumed both BEP2 turbines were also in startup using the emissions values proposed here (3600 lb/hour and 8004 lb/day). The results of this modeling exercise are presented in **AIR QUALITY Table 5** below and show that the direct startup emissions from BEP1 in combination with all potential future projects in the vicinity will not cause a new violation of an AAQS, even under very conservative conditions.

AIR QUALITY Table 5
Modeled Cumulative Startup CO Impact

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
CO	1 hour	6,065	3,191	9,256	23,000	40%
	8 hour	692	1,891	2,583	10,000	26%

Source: Blythe 2004b, Table 7, p. 6-6 and Blythe 2004c

Annual CO Emissions Significance

Since the MDAQMD is in attainment for all CO standards, there is no specific requirement to control the annual CO emissions from BEP1 beyond the federally imposed BACT during normal operations. Staff thus analyzed the proposed emissions for consistency with the available emissions data for the turbines and the known operational patterns of the facility. In the original request for amendment (Blythe 2003a and Blythe 2003b), Blythe Energy presented a proposed annual operational scenario and startup emissions estimate that staff did not believe to be technically realistic. Staff requested additional startup and operational data (Blythe 2004a), and met repeatedly with Blythe Energy staff to determine a more realistic operational profile on which to base the annual emissions limit. These data requests and discussions resulted in the more recent amendment request from Blythe Energy (Blythe 2004b) including proposed daily and annual operating scenarios (**AIR QUALITY Table 2** and **AIR QUALITY Table 3**) that staff believes are technically realistic. This new request also includes the revised BACT determination set by U.S. EPA (EPA 2004).

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) FOR CO

The U.S. EPA reviewed a similar request for modification of the BEP1 startup CO emissions limits, which are also contained in the federal Prevention of Significant Deterioration (PSD) permit for the facility. The final revised PSD permit for BEP1 was issued on November 17, 2004 (EPA 2004). In addition to supporting the modifications to the startup limits described above, U.S. EPA determined that a new BACT analysis was required. This new analysis was prepared because the startup emissions limit increase requested by Blythe Energy resulted in an annual CO emissions limit increase of greater than 100 tons, thus triggering a full PSD review.

The revised PSD permit reduces the emissions limit for CO at BEP1 to 4.0 ppmvd, corrected to 15% oxygen, averaged over three hours. U.S. EPA states that the revised permit does not require the installation of oxidation catalysts to meet the limit, but that if BEP1 cannot comply with the limit without add-on control technology, it will have to install the appropriate technology (EPA 2004, p. 3). This should be feasible since BEP1 was designed with room for such a catalyst as required by condition of certification AQ-18. Blythe Energy had thirty days to file a petition for review of that federal permit change (per 40 CFR Part 124) if they believed it was in error. Since Blythe Energy did not file such a request and based on conversations between Energy Commission staff and Blythe Energy, staff believes that Blythe Energy will not object to a similar modification of the state permit. Staff thus proposes that the Commission modify condition of certification AQ-5 to agree with this new BACT value (17.5 lb/hour, based on 4.0 ppmvd, corrected to 15% oxygen).

CONCLUSIONS

The environmental significance of CO emissions are evaluated here in two parts: short-term impacts and long-term emissions. The short-term impacts are evaluated by comparing the modeled short-term impacts to all state and federal AAQS to determine if they have the potential to cause or contributed to a violation. The long-term emissions are evaluated by determining if the facility is appropriately applying the federally determined BACT limit and if the proposed emission limits are based on reasonable worst case operational behavior. A reasonable worst case scenario is both technically feasible and based on the best available data for the actual emissions from the equipment.

Staff has analyzed the requested changes to the Blythe Energy Project Conditions of Certification and concludes that there will be no significant short-term or long-term air quality impacts associated with approving the requested changes to the limits for CO. Staff agrees with Blythe Energy that there is a need to clarify the definition of startup in condition AQ-8, but believes the language proposed below is clearer than the language proposed by Blythe Energy in the application (Blythe 2004b, p. 3-2). Further, staff agrees with the requested elimination of the distinction between cold, warm and hot startup since imposing this distinction between different startups events complicates record keeping and does not provide added environmental benefit.

Staff concludes that the proposed changes are based on new information that was not available during the original licensing proceedings and that the proposed changes retain the intent of the original Commission Decision. Staff supports the modifications requested by Blythe Energy in the November 2004 submittal (Blythe 2004b) and staff presents Proposed Changes to the Conditions of Certification below. **AIR QUALITY Table 6** below provides a summary of all the proposed emissions limit changes.

AIR QUALITY Table 6
Summary of Proposed CO Emissions Limit Changes

CO Limit	Condition	Original	Change	Proposed
Cold Startup	AQ-8b	403	+3197	3600 lb/event
Warm Startup	AQ-8b	253	+3347	3600 lb/event
Hot Startup	AQ-8b	172	+3428	3600 lb/event
Daily	AQ-6b	3808	+4196	8004 lb/day
Annual	AQ-7b	306	+315	621 tons/year
Hourly, concentration	AQ-5a.ii	5.0 / 8.4	-1.0 / -4.4	4.0 ppmv
Hourly, mass	AQ-5a.ii	35.2	-7.7	17.5 lb/hour

PROPOSED CHANGES TO THE CONDITIONS OF CERTIFICATION

Changes are proposed to Conditions of Certification AQ-5, AQ-6, AQ-7 and AQ-8.

~~Strikethrough~~ indicates deleted text and **bold double-underline** indicates replacement or new text. Proposed changes are as follows:

AQ-5 Emissions from the turbines (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NO_x and VOC during periods of startup, shutdown and malfunction:

- a. Hourly rates, computed every 15 minutes, verified by CEMS and annual compliance tests:
 - i. NO_x as NO₂ – 19.80 lb/hr (based on 2.5 ppmvd corrected to 15% O₂ and averaged over one hour)
 - ii. CO – **17.5** ~~35.20~~ lb/hr (based on **4.0 ppmvd** ~~5.0 ppmvd (8.4 ppmvd with duct firing or when between 70 and 80 percent of full load)~~ corrected to 15% O₂ and averaged over 3 hours)
 - iii. Ammonia Slip – 10 ppmvd (corrected to 15% O₂ and averaged over three hours)
- b. Hourly rates, verified by annual compliance tests or other compliance methods in the case of SO_x:
 - i. VOC as CH₄ – 2.9 lb/hr (based on 1 ppmvd corrected to 15% O₂)
 - ii. SO_x as SO₂ – 2.7 lb/hr (based on 0.5 grains/100 dscf fuel sulfur)
 - iii. PM₁₀ – 11.5 lb/hr

Verification: The project owner shall submit the following in each Quarterly Operations Report: All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol; a list of maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NO_x, CO, PM₁₀, VOC and SO_x (including calculation protocol); and a log of all excess emissions, including the information regarding malfunctions/breakdowns required by District Rule 430. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NO_x emission rate and ammonia slip. Any maintenance to any air pollutant control system (recorded on an as-performed basis). Any permanent changes made in the plant process or production that could affect air pollutant emissions, and when the changes were made.

AQ-6 Emissions from the turbines, including the duct burner, shall not exceed the following emission limits, based on a calendar day summary:

- a. NO_x – 5762 lb/day, verified by CEMS
- b. CO – ~~3808~~ **8004** lb/day, verified by CEMS
- c. VOC as CH₄ – 239 lb/day, verified by compliance tests and hours of operation in mode
- d. SO_x as SO₂ – 130 lb/day, verified by fuel sulfur content and fuel use data
- e. PM₁₀ – 565 lb/day, verified by compliance tests and hours of operation

Verification: The project owner shall submit the following in each Quarterly Operations Report: All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol; a list of maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NO_x, CO, PM₁₀, VOC and SO_x (including calculation protocol); and a log of all excess emissions, including the information regarding malfunctions/breakdowns required by District Rule 430. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NO_x emission rate and ammonia slip. Any maintenance to any air pollutant control system (recorded on an as-performed basis). Any permanent changes made in the plant process or production that could affect air pollutant emissions, and when the changes were made.

AQ-7 Emissions from this facility, including the cooling towers, shall not exceed the following emission limits, based on a rolling 12 month summary:

- a. NO_x – 202 tons/year, verified by CEMS
- b. CO – ~~306~~ **621** tons/year, verified by CEMS
- c. VOC as CH₄ – 24 tons/year, verified by compliance tests and hours of operation in mode
- d. SO_x as SO₂ – 24 tons/year, verified by fuel sulfur content and fuel use data
- e. PM₁₀ – 103 tons/year, verified by compliance tests and hours of operation

Verification: The project owner shall submit the following in each Quarterly Operations Report: All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol; a list of maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NO_x, CO, PM₁₀, VOC and SO_x (including calculation protocol); and a log of all excess emissions, including the information regarding malfunctions/breakdowns required by District Rule 430. Operating parameters of emission control equipment, including but not limited to

ammonia injection rate, NO_x emission rate and ammonia slip. Any maintenance to any air pollutant control system (recorded on an as-performed basis). Any permanent changes made in the plant process or production that could affect air pollutant emissions, and when the changes were made.

AQ-8 Emissions of CO and NO_x from the turbines shall only exceed the limits contained in AQ-5 during startup and shutdown periods as follows:

a. Startup is defined as the period beginning with ignition and lasting until either the equipment complies with all operating permit limits specified in condition AQ-5a for two consecutive 15-minute averaging periods or four hours after ignition, whichever occurs first, the equipment has reached operating permit limits. ~~Cold startup is defined as a startup when the CTG has not been in operation during the preceding 48 hours. Hot startup is defined as a startup when the CTG has been in operation during the preceding 8 hours. Warm startup is defined as a startup that is not a hot or cold startup.~~ Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.

b. ~~Transient conditions shall not exceed the following durations:~~

- ~~i. Cold startup — 3.7 hours~~
- ~~ii. Warm startup — 2.0 hours~~
- ~~iii. Hot startup — 1.2 hours~~
- ~~iv. Shutdown — 0.5 hour~~

~~bc. During a cold startup emissions~~ The emissions from each startup or shutdown event shall not exceed the following, verified by CEMS:

- ~~i. NO_x — 376 lb~~
- ~~ii. CO — 403 3600 lb~~

~~d. During a warm startup emissions shall not exceed the following, verified by CEMS:~~

- ~~i. NO_x — 278 lb~~
- ~~ii. CO — 253 lb~~

~~e. During a hot startup emissions shall not exceed the following, verified by CEMS:~~

- ~~i. NO_x — 260 lb~~
- ~~ii. CO — 172 lb~~

~~f. During a shutdown emissions shall not exceed the following, verified by CEMS:~~

- ~~i. NO_x — 170 lb~~
- ~~ii. CO — 48 lb~~

Verification: The project owner shall include a detailed record of each startup and shutdown event in the Quarterly Operations Report. Each record shall include, but not

be limited to, duration, fuel consumption, total emissions of NO_x and CO, and the date and time of the beginning and end of each startup and shutdown event. Additionally, the project owner shall report the total plant operation time (hours), number of startups, hours in ~~cold startup~~, ~~hours in warm startup~~, ~~hours in hot startup~~, hours in and shutdown, and average plant operation schedule (hours per day, days per week, weeks per year).

REFERENCES

Blythe 1999 (Blythe Energy, LLC). Blythe Energy Project Application for Certification. December 8, 1999.

Blythe 2003a (Blythe Energy, LLC). Petition for Air Quality Conditions Modification, Submitted to: California Energy Commission. December 2003.

Blythe 2003b (Blythe Energy, LLC). Application for Modification to Final Determination of Compliance, Facility ID#00062, Submitted to: Mojave Desert Air Quality Management District. December 2003.

Blythe 2003c (Blythe Energy, LLC). Blythe Energy Project Application for Modification to Prevention of Significant Deterioration Permit, PSD Permit No. SE-00-01, Submitted to: U.S. Environmental Protection Agency, Region IX. December 2003.

Blythe 2004a (Blythe Energy, LLC). Blythe Energy Project (99-AFC-8), Air Quality Conditions Modifications Data Request Responses. May 4, 2004.

Blythe 2004b (Blythe Energy, LLC). Petition for Air Quality Conditions Modification, Submitted to: California Energy Commission. November 2004.

Blythe 2004c (Blythe Energy, LLC). BEP 11/2/04 Amendment Modeling Files CD-ROM. November 4, 2004.

CEC 2001 (California Energy Commission). Final Commission Decision on the Blythe Power Plant Project. March 21, 2001.

EPA 2004 (U.S. Environmental Protection Agency). Ambient Air Quality Impact Report (NSR 4-4-4, SE 03-01). November 17, 2004.

Siemens 2000 (Siemens/Westinghouse). Estimated - Wisvest Blythe Startup Emissions V84.3A2, 2x1 Combined Cycle. Spring 2000.